A COMPREHENSIVE COMPILATION OF CRITICAL SUCCESS FACTORS FOR THE IMPLEMENTATION OF ENTERPRISE RESOURCE PLANNING (ERP) INFORMATION SYSTEMS

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Abstract—Enterprise Resource Planning (ERP) has emerged as a common and necessary platform among small and medium scale enterprises to remain competitive in the global business. Critical Success Factors (CSFs) have been used to determine the level of success of ERP implementation, thus comprehensive compilation of research related to CSFs and their identification in small and medium sized enterprises in developed countries is the main purpose of this research. Studies of the success of ERP implementation have generally been conducted in relatively large economies organizations. Further analysis would shed more light on the importance and determination of critical success factors in small and developing economies to Provides framework that can serve as a valid toll for ERP vendor as well as SME owner-managers and to help them in providing better position before the implementation of an ERP system. The results found indicated more than twenty two factors involved in ERP success and top management was found to be a key factor influencing the success of ERP implementations.

Keywords—Enterprise Resource Planning (ERP), Critical Success Factors (CSF), Small to Medium Sized Enterprise (SMEs), Integration, Top management support, Information Technology (IT), Lebanon.

I-Introduction

Enterprise Resource Planning (ERP) has become over the last decade a vital element in every organization of different sizes and in different industries. In the past, these systems were used by large organizations due to high cost and complexity. Today, ERP systems are being integrated in small and large organization, in developed and developing economies. The integration between all functional and departmental areas that exist within an enterprise can be enhanced through a critical link which is ERP systems. Over the past few years, ERP system have grown widely in complexity to accommodate various needs, ERP vendors are turning their sights on smaller enterprises; with their limited resources, small enterprises are less likely to overcome a failed implementation of ERP.

ERP system selection is not a simple process and ERP targets multiple industries with very different characteristics. The identification of critical success factors (CSFs) has been found to play a crucial role in the successful adaption of these systems. The main objective of this research paper is to create an exhaustive list of factors that are critical during the implementation of ERP in small to medium sized enterprises.

ERP literature focused on identifying, developing and analyzing the critical success factors though case studies, these literatures have examined ways to identify or develops critical success factors. ERP system adoption and adaptation by Lebanese SMEs is a new trend since the number of companies dealing with ERP implementations is not enough which requires a significant consideration in the ERP market, in this context it is significant to note that ERP market was occupied by 66% by North America; Europe had 22%, whereas the whole of...
Asia was only at 9% (Shaul and Tauber, 2013). ERP adoption by large companies has flattened while small to medium enterprise showed steady growth which forced ERP vendor to adopt simplified and inexpensive version of their product.

This shift to an integrated system id due to the global competition, centralization, growing consumer power along with increasing transparency to maintaining business goals, achieves flexibility, provide quick response, enhance company resource utilization, precise operations flows and integration of resources and maintain competitive advantage. The important message to managers is that they need to fully recognize the difficulty of ERP implementation and proper identification of critical success factors require the crucial control of management and the determination of organizational capabilities that are conductive to the successful ERP implementation.

II- Literature Review

The ERP systems are integrated software packages that automate and integrate core corporate activities from supply chain management, inventory control, manufacturing scheduling and production, sales support, customer relationship management, financial and cost accounting, human resources, and almost any other data-oriented management process. The cost of the ERP system consists of 15% software, 30% hardware, 40% systems integration, and 15% personnel (Lutovac and Manojlov, 2012). Nazami et al. (2012) indicated that the total cost which include including hardware, software, professional services, training, and internal staff costs could range between $300 million and $400,000 with an average of $15 million.

ERP has become a business trend (Huang et al., 2004); According to Shaul and Tauber (2013) through the last decade the role of ERP system has changed, the theme handled in research related to ERP investigated the main challenges of ERP implementation in light of the most listed success factors in the literature, different ERP life cycle models, studies investigating critical success factors might help to analyze the different outcomes and importance of critical success factors across ERP lifecycle in SMEs operating in developing courtiers and contribute in providing different perspective about post-implementation activities such as enhancement, upgrading and maintenance of ERP system to maximize organizational benefits.

The major ERP vendors, SAP and Oracle, provide enterprises with more complex control systems than vendors in the mid-markets (Hsu et al., 2006); Oracle has installed databases in nearly every one of the world’s top 500 companies (Trott and Hoecht, 2004). One of the largest ERP companies is SAP AG (a German Company) and it is the third largest. 40% of the market is controlled by this vendor about 80% of SAP’s sales occur in Europe and the United States, while the remaining 20% spread in Asia (Dantes and Hasibuan, 2012). According to Masini and Wassenhove (2008) the Europe, Africa and Middle East market witnessed a growth rate of 5.2% in 2005 and 11.8% in Asia-Pacific region. The failure rate has been estimated between 60% and 90%, according to Rouhania and Ravasan (2012) “these projects are, on average, 178% over budget take 2.5 times longer than intended and deliver only 30% of the promised benefits”. Lutovac and Manojlov (2012) found that more than 80% of companies in Indonesia failed to implement ERP and 50% of companies in the world failed to obtain the optimal return value. 50% of the companies implementing the ERP according to some researchers show that systems failed to gain success since ERP projects often require fundamental changes in organizational structure (Masini and Wassenhove, 2008). According to Wang et al. (2006) ERP are not universal which means that vendor could make an assumption about principles of managing data and process which are nationally bounded, a main source of ERP misfit is the assumption of universal best practices for information management by ERP vendors.

Despite the many advantages of ERP, their implementation is often paved by obstacles in SMEs which witnessed a 50% failure rate during implementation (Grandhi and Chugh, 2012). Some key barriers to the implementation of ERP in SMEs as gathered from the extant literature follow:

- **Time and Cost Constraints:** Anderson et al. (2011) found that accelerated implementation confers both operational and strategic

- **Business process and software do not fit properly:** As more than 40% of costs are associated with reengineering cost, it is vital for SMEs to redesign their business process to be in close match to ERP. Yen et al., (2011) pointed out that this failure is due to
the inability of ERP vendors to model operation process or process flow of a user enterprise.

- **End User Resistance**: "Many staff respond with resistance, anger, frustration and confusion’ when new systems are being implemented" (Grandhi and Chugh, 2012) which generate fear that hinder the users from their involvement in the design process.

- **Lack of skilled staff**: Tuning and configuration of the system require professional and skilled staffing; inadequate recruiting and training may become barriers for successful ERP implementation. These factors are considered to be a significant predictor for ERP user’s satisfaction. Anjum (2011) concluded that the perceived usefulness of ERP, internal support and compatibility have been positively correlated with user satisfaction.

- **Companies regressive policies**: The sluggish and hesitation of top management may hinder the implementation as they resist any change in business process (Lutovac and Manojlov, 2012).

- **Project team**: ERP implementations would seem to be much more risky investments and require substantially more managerial effort; the top management should create a rewarding model that help participant to prove the new environment (Roztocki and Weistroffer, 2013).

To make implementation effective and efficient; a successful development has either to ensure deployment of best practices suggested by ERP vendors or to be customized to meets business needs. The rate of adopting two or more ERP software package has reached 40% in SMEs, while adopting three or more ERP packages has reached 15% (Lutovac and Manojlov, 2012).

The rate of ERP success depends on organization’s ability to customize these systems which reflects the necessary knowledge in business process and software. Customization is time consuming and expensive process where it could reach 34% for SMEs while it could reach even higher level in large companies (Sharma et al., 2012).

Customization enabled local vendors to be less constrained and increased their flexibility level which enabled them to modify their system based on local needs thus opening up their systems for more detailed shaping in user organizations while this Global vendors lacked this advantages because they tend to maintain a consistent version of their system (Wang et al., 2006). Two types of customization can be identified (Sharma et al., 2012):

- **Technical customization**: To fit the process, the system is customized
- **Process customization**: To fit the system, the process is customized

ERPs are considered to be major investments similar to investment in physical facilities, their deployment reflects organization’s ability to develop and produce corporate wide–effects that contradict existing organizational value, culture, and practice (Wang et al., 2006). The return on sales (ROS), return on assets (ROA) and return on investments (ROI), inventory turnover, account receivables turnover, and total asset utilization are known as operating performance indicators to measure the relationship between ERP investments and firm performance (Lu and Jinghua, 2012). Wu and Liou (2010) showed that “those revenues do not necessarily have to exceed costs for investment in ERP to be undertaken”. When making a dynamic ERP investment decisions companies face uncertainty in costs and revenue, it is essential to static values and value of uncertainty while consider ERP evaluation.

Ahmad et al. (2013) pointed out five criteria that can ease the selection process of ERP package which are local support, knowledge of latest technology, affordability, supplier’s familiarity and knowledge, and software upgradability. Based on Batada and Rahman (2011) and Winkelmann and Leyh (2010) the selection of vendors should be based on different major criteria while making the final decision: Must have similar business experience and market dominations, have recommendations by clients in the same geographical region, Must have success stories of implementing same or similar solutions and finally must have a range of function for trade, production, inventory control.

Global competition has limited all types of resources: people, money, and material. This domination has lefts SMEs with little resources to deal with and forced them to be more innovative and flexible especially because mid-sized companies need...
to define a clear “unique selling point. Since ERP selection is an essential investment for SMEs they need to adopt a structured selection approach, define, and prioritize the characteristics and involve internal and external staff (Van Der Vorst, 2012). Kwahk and Ahn (2010) showed that local vendors tend to develop ERP system with features that make local or domestic users friendlier through the incorporation of culture-specific factors in ERP software; whereas global vendors driven by their orientation to invade global market, they are more likely to develop ERP system that are less localized than domestic ERP system

Risks associated with ERP system can be divided into four categories business, control, system, and security. Business risks are the most crucial type; Hsu et al. (2006) emphasized the importance of changing business environment before any attempt to introduce ERP as business culture may not tolerate any major change; also business reengineering is a prerequisite for an effective system because of the preinstalled business process in ERP. The risk related to the breakdown of enterprise’s embedded policies and procedure is referred as control risk, inadequate segregation of duties and inefficiencies in operations are all related to control risks. Effective segregation of duties is an integral part of the control system which help in enhancing efficiency in operations; duties or functions include authorization, recording and custodial activities (Hsu et al., 2006).

ERP system implementation has generated varying outcomes; many organizations had a successful or disastrous implementation of ERP. Based on Staehr et al. (2012) there is not an adequate understating and explanation about how and why these varying outcomes do occurs. Based on Štemberger et al. (2009) the potential benefits of implementing ERP systems include drastic declines in inventory, breakthrough reductions in working capital, abundant information about customers’ wishes and needs, along with the ability to view and manage the extended enterprise of suppliers, alliances and customers as an integrated whole systems.

ERP implementation is intended to create substantial benefits. Benefits that could extend from reducing operational risk, increasing output, strengthen internal control, strengthen decision quality and increase response speed (Weng and Liu, 2013). Gargeya and Brady (2005) classified benefits into two types tangible and intangible; the tangible one included cash management improvement, information technology reduction, financial cycle improvements, order management improvement; the intangible benefits included better integration, standardizations, flexibility, business performance, information visibility, customer responsiveness.

Critical success factors as identified by Grabski et al. (2011)” as those few things that must go well to ensure success for a manager or an organization” Critical success factors as defined by Ali and Xie (2012) the key areas of activity in which favorable results are absolutely necessary for a particular manager to reach the goal”. There exist an amount of literatures provide an insight into those areas that managers must divert their resources and time to achieve success. The success of the critical implementation of integrated-enterprise systems depends on the proper identification and management of critical success factors at each stage of implementation (Ho and Lin 2004).

Doom et al. (2010) claimed that there is a substantial difference that exist between the critical success factors required for the implementation of ERP in SMEs than that required in LEs environment and cannot be extrapolated to SMEs; also the critical success factors are different at each phase of the integrated-enterprise systems implementation (Ho and Lin, 2004). The recognition of elements of successful ERP implementation in SMEs is important and usually is restricted by knowledge and resources constraint (Loh and Koh, 2004). According to researchers the list of CSFs contained 22 factors, and based on Usmanij et al. (2013) eight of these factors were related to human factors: top management support, project team competence, interdepartmental cooperation, clear goals and objective, project management, interdepartmental communication, management cooperation and careful package.

The complexity of ERP implementation is underestimated by organization as a result 90% of ERP implementations are delivered late or are over budget, a 67% fail rate in achieving corporate goals and are considered negative or unsuccessful (Shaul and Tauber, 2013). Moreover the failure cab be attributed to leadership (42%), organizational and cultural (27%), human and people (23%), technology and other issues (8%). Implementation of ERP is the most studies phase studied by researchers and practitioners, the adaptation and customization occurs at that stage as per the need of organization (Ahmad et al, 2013). The rationale behind listing a large number of CSFs is to get an insight into the
phenomenon of implementation and determine the risk of failures.

As opposed to the traditional implementation of information system, the cost and complexity level of ERP implementation impose different risk on enterprises. Doroba and Nastase (2012) investigated diverse factors such as the education, the training and level of users contribution that could be involved in the process of ERP implementation, these factors were thought to have an impact on implementation because of their ability to consume time, requires costly investment and accurate management of human resource. Lu and Jinghua (2012) investigated the relationship between the investment and performance level of firms; the study indicated that better performance of ERP implementation is positively correlated to corporate governance and companies at a higher level of diversification showed worse performance. Different critical success factors will be revealed and discussed in the following section:

- Configuration of Software and BPR: Companies have the choice of either reengineer their process to fit the application or choose an application that fit their business (Ahmad et al., 2013). Moohebatet al. (2010) revealed is that the Fit between ERP and business/process" was the least cited factor among developing nations. Chockalingam and Ramayah (2013) stress on the point that reengineering business processes is essential in terms of increasing the level of compatibility between an organization and ERP software since ERP is concerned with the repositioning of the company and transforming the business process. Dezdar (2012) stated that companies do not necessarily possess tools/process and structures that are matched with ERP systems; for this reason companies are expected to re-engineer their process.

- Top Management Control: According to Chockalingam and Ramayah (2013) the main purpose of top management support is to provide leadership; and provide the necessary resources. Martin and Huq (2007) mentioned that to management involvement, leadership and support have been cited as the most important CSF during the implementation phase of an ERP project.

- Interdepartmental Communication Scheme: According to Štemberger et al. (2009) the exclusive concentration on the technical aspect while ignoring the changed management elements is the reason behind many failures. Communication breakdown is sometimes unavoidable and due to different languages or technical jargon used.

- Timeline of Implementation Strategy: According to Nazami (2012) it usually an ERP project takes ERP anywhere between 12 and 30 months. There are numerous implementation strategies for ERP transition. These are big bang, phased, parallel, process line and hybrid. Phased approach is most supported by researchers.

- Legacy System Consideration: Legacy system can impact ERP implementation, the weakness of legacy can make the effort to implement harder. Factor. Minimal customization or vanilla approach is to help organization reduce cost and time and increase the level of upgrading (Uwizelyemungu and Raymond, 2012).

- Organizational Characteristics and Interdepartmental Cooperation: Grabski, et al. (2011) showed that there is potential difference between ERP implementations in large firms versus small and midsized enterprises, SMEs showed greater interest in having shorter implementation times, chose different ERP than large firms, top management support was more essential for SMs than large firms.

- System Testing and Vendor Support: Finney and Corbett (2007) emphasized the importance of IT infrastructure as a critical success factor, if necessary organizations has to assess its IT readiness including the architecture and skills. According to Dezdar (2012) vendor’s support is needed because of the wide range of skills and technical implementation knowledge required. ERP packages are only compatible with certain databases and operation systems.

- Troubleshooting/Crises Management: Scott and Vessey (2000) argue that the experience of failure can produce learning outcomes, organization learning experience took place once the problem is identified, it is essential when managing failure in ERP implementation to foresee trouble area and learn from failure.
Country Related Functional Requirements: Gargeya and Brady (2005) discussed organizational diversity and culture; the more global and larger companies their diversity will act as an obstacle to ERP success. 18 CSFs related to the implementation of ERP in 10 different has been identified by Ngai et al. (2008). Srivastava and Gips (2009) investigated the cultural dimension in Chinese marketplace which is known to be a fragmented market where cultural nuances in ERP implementation differs between different regions in china, this pose challenge for Western ERP consulting teams. Klaus et al. (2000) showed that the transferability of ERP best practices on a global scale might be limited due to very country specific requirements relating to very fundamental processes. Moohebat et al. (2010) emphasized on the difference between developed and developing countries in term of the identification of CSFs importance; what was found is that there is an undeniable difference between developed and developing countries but still the level of difference is low. In developing countries, the culture has more impact on ERP implementation while in developing countries the role of ERP vendors is more impressive.

Users Training: The third most important factors in determining ERP are User training and education. Dorobat and Nastase (2012) and Finney and Corbett (2007) listed different factors relevant in the training of user: Top management commitment that support training program which require 10% to 20% of the budget to be allocated; defining personnel skills and competencies in order to allocate resource to the intended users; scheduling Training date in order to minimize the gap between the actual training and the commencement of ERP; availability of training evaluation that could prove the effective knowledge transfer; Cost effective knowledge transfer; modification of compensation plans. Based Garača (2011) conclusion the perceived usefulness of ERP system and ease of use has a significant impact on the level of satisfaction with the used ERP and indirectly affect the intention to use it

III-Methordology and Procedures

The classification of CSFs would help users of CSFs framework to choose the relevant factors of the conducted research. Extensive literature review of implementation phase has been done to reveal the CSFs and compares it with that of global counterpart in terms of relative rankings of these factors. The source of secondary data that was collected was based on the work of different researchers in many studies who were able to combine and classify CSFs using different perspective in different countries and organizations with different culture which offer the chance to obtain a wide range of data spread. Several studies emerge to identify and classify CSFs; these studies can be grouped in two categories studies that give lists of CSFs and studies which try to group CSFs using different techniques.

The collection of primary data in research studies, which is based on the work of researchers, have been done through questionnaire where the respondents were asked to indicate their level of agreement with each of the statement using a 5 to 10 scale from Strongly Disagree to Strongly Agree. The following hypothesis can be proposed:

H1: An increase in top management support for ERP implementation would lead to a successful ERP implementation.

H2: The stronger the influence of support from senior managers, the stronger the impact on management performance, if the ERP knowledge management is better

The use of social capital theory based on Grabskis et al. (2011) will disclose the relationships among ERP users in term of what motivates individuals to certain behaviors, to enhancement, and acceptance of ERP. The researchers have adopted the social construction technology approaches which imply that the design and purpose of technology is determined by the interest of groups and individuals and thus moving beyond the socio-technical aspect of IT (Dery et al., 2006). It also could provide us with an explanation about why some organizational entities have difficulty accepting and using ERP systems while others do not. Similar to other studies, the primary objective of this study is to identify the type of CSFs and their relationship with other selected variables such as company size, culture, country of origin. Nevertheless, this paper cannot moves beyond the
traditional body of literature in this arena for many reasons:

- Studies of this nature have generally been conducted in relatively large economies with active financial and stock markets.
- These studies can be classified as theoretical and empirical, some empirical cases are global and others are country specific such as India, USA, Japan, and China.

The multi-methods in this research consisted of literature review. The main articles were scanned, identified and classified based on the computerized search in journals and database. The following criteria were adopted; the publication of articles in peer-reviewed journals is a must, the article must contain the term ERP implementation or its equivalent. The primary data collection can be done through the questionnaire technique which compromise measurement different scales such as the perceived ease of ERP system, satisfaction level, computer anxiety in the use or ERP.

Content analysis is perhaps one of the most used lines of attack in CSFs studies; this process involves codifying the text into various categories depending on the chosen criteria. This is done through a planned process which entails the selection of the content/document to be analyzed, the determination of the selection criteria and measurement unit, and the codification of the text as well as the implementation of appropriate measures to enhance validity and reliability. All factors were lumped into four categories; data generation involved analyzing journals and magazine articles for information relate to companies that have implemented ERP.

The individual evaluation of each CSF involved in the implementation and categorization of these factors is crucial as it helps to maximize the benefits from the implementation of ERP system. ERP environments have had mixed result, the subject of an extensive literature was the failures and problem during implementation; even though the failure rate is not as common at large organizations as in the past but still occur problems upon application integration during customization. SMEs need for ERP system is higher than ever; only 27% of SME companies are using ERP systems versus 57%-70% of large companies, these results were found in a study of 550 companies (Van Der Vorst, 2012).

Plant and Willcocks (2007) found that the international dimensions of ERP and its relation to experienced outcomes is still under research and not exploit The critical success factors can be classified into three different categories based on Ahmad and Cuenca (2013):

1. Organizational Factors: Project management, Business process engineering, Project team composition skills, Training on software , Goals and objective are Clearly defined, Role of Project champion, Interdepartmental cooperation , Consultants role and ERP software selection criteria.

2. Neutral factors: Interdepartmental cooperation and Software customization

3. Operational factors: Management expectations, Vendor’s tool, Conversion and analysis of data, Vendor’s support and Software configuration.

As ERP systems are considered to be the major managerial tool and technology that requires the multi-disciplinary attention of operations management, information systems, finance, marketing, organizational behavior, and human resources fields; it is becoming impressive to observe an increase in the number of articles published about ERP. ERP is considered to be at the top list of IT-enabled business innovations.

The interaction between these critical factors has been investigated by Ahmad and Cuenca (2013) these groups were grouped into three different categories:

- Basic: Four factors are included which are Project team skills, experienced project manager, Resources, Data analysis. These factors have impact on others CSFs but others do not significantly impact them.

- Critical: Three factors are involved which are Cultural change, Use of consultants, Management support. These factors are subject to the impact of CSFs initiated by basic CSFs sand they have notably impact from others.

- Dependent: factors included in this category are those factors which are highly impacted by other CSFs; these factors are Cooperation, Evaluation progress, Communication
IV-Findings

The large numbers of internal and external factors that are involved in ERP implementations render the process more complex. In this paper we aim to answer the following assumptions: Throughout the literature review revised in the previous chapter, we pointed out that Ahmad and Cuenca (2013) were able to identify 33 CSFs related to ERP implementation; and as Ahmad and Cuenca (2013) mentioned that these CSFs were classified from organizational and operational point of view based on academic and managers criteria. Their investigation revealed that 80% of top ten CSFs that were identified have the most important impact on the success of implementation.

Akkermans and Van Helden (2002) illustrated 22 CSFs for the success of ERP implementation. The importance of CSFs list can be employed in determining the initial failure and the eventual success of the implementations. Akkermans and Van Helden (2002) implied that top management support is especially important at the early stages of such projects. Middle management and other staff are at least as important as top management but they play a different role.

Analyzing the interaction among the CSFs is thought to highlight the importance of revealing the number of difficulties encountered during the implementation process and how it can maximize the benefits from implementation of ERP systems. Top management support and involvement was seen as the major critical success factor of ERP implementation by the majority of respondents. Karimi et al. (2007) supported these findings by stating that top management provides visibility and credibility to ERP implementation, it secures funds and resources necessary to staff and prevent premature demise such as during organizational cost cutting. What Akkermans and Van Helden (2002) found is that these CSFs are linked in a way that reinforces each other in the same direction leading to either vicious or virtuous cycles of ERP implementation performance. These CSFs are causally related, any change that occurs to any factor would ripple through in all the others. These CSFs are all influenced in the same direction; all positive or all negative leading to a self-perpetuating or cycle of good or poor performance.

Zabjeket al. (2009) emphasized that top management support differs among industries, essentially the ability of top management incentives act as an essential ingredients for a successful process ERP implementation. Also Ali and Xie (2011) observed the role of top management support role in successful implementation. According to data collected 68% respondents ‘strongly agreed’ and 19% ‘agreed’ that the top management support has a crucial role during implementation. Martin and Huq (2007) mentioned that to management involvement, leadership and support have been cited as the most important CSF during the implementation phase of an ERP project.

ERP requires a cross-functional and multi-skilled implementation team because it brings a need to identify the skills needed by those individuals who are dealing with this system. In this context, Mahdavian and Mostajeran (2013) stressed on the difference between the amount of technical, human skills and conceptual skills required by top management in both SMEs and large companies to ensure successful implementation of ERP.

The reasons for adoption of ERP by large companies were initially considered more appropriate for large firms due to high cost of purchasing and implementation. Small firms have different expectations about ERP system. But the question of why small firms adopt ERP for different reasons than large enterprise remains important (Congden et al., 2005). The difference in motivation for ERP adoption between small and large enterprise has been determined by Congden et al. (2005) who identified four drivers: integration, reducing cost, facilitating growth and linking with external environment.

The results revealed that integration is both important for both type of firms whether large or small, also firm growth was found to be a non-significant driver for both large and small firms. The only driver that was related to firm size is cost reduction. Saving cost might come from removing redundant work processes, reducing the cost of operating and maintaining the legacy system; all of these cost exist in large firms and limited in small firms. In the same context Laukkana et al. (2007) indicated the difference that exist between small, medium and large companies in a study conducted with 44 finish companies; the findings suggest that small enterprise experience knowledge constraint while large enterprise are challenged by the changes witnessed during the implementation.

Federici (2009) evaluated the success level of ERP adoption by small to medium sized enterprise and its role in company performance. The results suggest that ERP systems can be perceived as improvement opportunities for SMEs and in every sector, also the
same benefits obtained by large enterprises can be obtained by SMEs.

Based on the reports published by Business Monitor International in 2014, Lebanon’s IT market is expected to act as a regional outperformer due to the rising income, declining device prices, improvements of telecom infrastructure, but still Lebanon is still subject to significant uncertainty as a result of security issue.

Different factors affected the level of information technology in Lebanon which is well positioned for regional hub status; these factors could be a weakness or strength for Lebanese market. For example the high telecommunication cost and lack of high-speed internet connections, IT-literate, political instability, Economic reform and privatization, attracting more foreign direct investment, cosmopolitan and linguistically skilled workforce which can draw global vendors. Lebanon strategic position for the Levant markets, prompt many companies, such as Intel, Microsoft and C.A, to operate in Lebanon despite the fact that Studies have shown relatively low awareness among smaller companies about the benefits of IT.

There is an increase in spending on software by enterprise and public sectors including telecoms, banking, transport and logistics, retail and distribution, utilities, and government. Also government is seeking to support the growth of e-commerce and e-government service delivery. The key opportunities in Lebanese market for ERP vendors are SMEs, SMEs account for a majority of Lebanon’s 700,000 businesses based on the reports published by Business Monitor International in 2014. Most vendors prefer to deal remotely with Lebanese market given its small size.

Demand for software solutions in Lebanon is expected to grow over the medium term in key sectors such as the banking sector who demand constantly complex enterprise software that sustain the increase in regulatory demands and the scale of the threat from cyber security issues; while the manufacturing and trading firms are seeking efficiencies by seeking full automation of back-office systems, improve tracking of marketing and spending, achieve greater control of their budgets. The market of enterprise software is relatively underdeveloped and is predominantly an SME market. Simplified applications are the most wanted type because it helps enterprises with basics such as salaries, inventories and sales records. CRM utilization remains at a lower level despite the fact that they are perceived by Lebanese enterprises as a better return on CRM investments. HR software is also becoming more widely adopted, as a means to track basics such as recruitment data, employee attendance, and training and employee evaluation.

Lebanon intended to expand offerings of productivity, business intelligence and virtualization software. Software production is a mature activity in Lebanon and it is an important source of employment in Lebanon. The domestic software industry is highly export-focused, 75% of all receipt from regional and western markets cover third of Lebanese firms. The software development industry accounted for 50% of software firms, with a further 37% working on web solutions and 13% mobile applications.

V-Conclusions and Recommendations

This main objective of this paper is to provide an insight into the critical success factors and to identify and categorizes these factors. The source and categories of ERP misfits may indicate that different solutions are needed to confront ERP failure stage. The problem of misfit means as stated by Holmberg and Johansson (2012) “Many people feel that the current ERP system has taken (or been given) a role that hinders or does not support the business processes to the extent. There are some variations in the relative importance of these CSFs. In order to achieve successful results from ERP implementation, organizations have to observe all the CSFs and more specifically the top ten CSFs identified in the literature review. All these factors need to be controlled and managed as positive factors and the factors that appeared mostly on the lists include: Top level management support, User training and education, Project management, clearly defined goals and objectives, Project team competence, and Change management.

An ERP implementation requires a multidisciplinary team effort and should not be viewed as an IT project; it upturns policies, practices and cuts into the heart of the business. Unlike other IT management information systems ERP is viewed as a tool for rational planning and management control, and has a dramatic impact on people. The detrimental effects of ERP need to be considered by senior managers upon the introduction of ERP. The level of user’s readiness/acceptance and personal autonomy individuals are frequently as one of the key effects during the implementation of ERP.
Since top management support was found to be crucial, it is important for managers to make change happen quickly once an implementation is initiated. Chief executives, chief financial officers, IT managers, and ERP project managers who fail to recognize these facts are setting themselves up for failure. Sufficient training which take weeks or months to scale learning curves in important for managers when considering retention strategy. Since ERP system cost millions, it is essential for SMEs to allocate small fraction of money to investigate the various software options available. The availability of human, specialized expertise, financial resources, and time are the main limitation when considering ERP purchase.

We would like to conclude this paper with a set of recommendations for each company size, which are based on qualitative information collected from primary data. The following points sum up what organizations need to take into consideration before ERP implementing:

a) Specific Recommendation for Large Enterprises
   a. Installing an ERP system for a significant trial period; ERP chosen must be flexible, modular, comprehensive, should not be confined to the organizational boundaries.
   b. Choose an ERP system that is able to adapt very fast according to business requirements
   c. Consider the upgrade/support and maintenance cost. These costs include cost of software, cost of hardware, potential future cost, implementation cost, and training cost.
   d. Choose a coordinator with authority to handle the implementation team. A strong leader would help implementation team understand the various options offered by an ERP package

b) Specific Recommendation for Small Enterprises
   a. Resource poverty should be considered since the extensive use of resource by Small enterprises for ERP project may have a negative effect on the conduct of the company’s core business.
   b. To focus on long term strategies that lead innovation rather than focusing on survival which lead to emphasis only to efficiency, cost reduction, and automation of ERP system.
   c. Small enterprises need to acknowledge the need of adequate expertise in ERP adoption, and also assess the need for external resources or experts (IT vendors or consultants).
   d. To heighten the attention needed for the training of users. Since the users’ IT competence are more significantly important in small companies.

c) International Recommendations for Enterprises
   a. Differences exist between ERP critical success factors between developed and developing countries, a careful evaluation of international critical success factors is vital.
   b. Different factors might influence ERP implementation in different branches around the world for the same companies.
   c. Change management remains the most important critical success factors whether in SMEs or large enterprise or in developed or developing countries.
   d. Designing a roadmap of the potential risks in ERP implementation project would provide enterprise with better understanding and information needed to mitigate the associated risks.

d) General Recommendation for Enterprises
   a. Take into account the geographic dispersion of enterprises which increase the complexity of project and influence the extent to which a given benefits can be realized from ERP implementation.
   b. To choose an ERP software that is able to handle multiple currencies in all transactions performed, ERP has to handle the specific requirements of different regions.
c. To introduce ERP projects in companies with the required organizational dynamics and business practice in place. Sweeping changes in company’s organization, business practices, and core competencies are key implications of ERP.

e) Recommendation for Lebanese Enterprises
   a. IT infrastructure in Lebanon is still in the development phase, the enterprise market can attract international vendors who could enhance information technology for SMEs.
   b. Lebanon SMEs represent a continuing growth opportunity, especially for the banking, finance, telecoms sector that are willing to spend on complex enterprise software to enable business analytics and to mitigate the threat from cyber security issues.
   c. Take into account the limitations of Lebanese enterprise upon ERP implementations such as the availability of human resources, of specialized expertise, of financial resources, and of time.
   d. To select ERP software that reflects company’s particular needs and choose features that are necessary to company operation and not install a whole package if not needed.

Further Researches

Considering the complexity of ERP implementation, ERP system provides a lavish material for researchers interested in this field. The evolution of these systems has witnessed a significant evolution since their appearance in the market. ERP system have reached a level of maturity; enterprises are developing better understanding of the technical, human resources and financial resources required for implementation.

Systems will become much more intelligent and their implementation is a challenging task. This research provides insights into the critical success factors of ERP implementation and provides some guidelines for organization to focus their resources in carrying such projects. The following guidelines or suggestion are based on the work of researchers in the field of ERP:

- A future studies that explore the difference in factors affecting ERP implementations in companies operating in the developed countries versus those in the developing countries especially middle east where the number of SMEs is a steady growth.
- The difference in ranking of critical success factor between SMEs operating in the Arab Gulf States and those in the western communities can be investigate

References

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